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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Difonzo et al.)
Serial No.: 09/620,776)
Filed: 21 July 2000)

Group No. 2684

Examiner: Stephen M. D Agosta

For: **DYNAMICALLY RECONFIGURABLE WIRELESS NETWORKS (DRWiN)
AND METHODS FOR OPERATING SUCH NETWORKS**

MS Appeal Brief - Patents
Director of the US Patent and Trademark Office
PO Box 1450
Alexandria, VA 22313-1450

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APPEAL BRIEF

SIR:

Applicants have appealed to the Board of Patent Appeals and Interferences from the decision of the Examiner mailed December 12, 2003, finally rejecting Claims 1-35. Applicants filed a Notice of Appeal on April 19, 2004. Applicants respectfully submit herewith their brief on appeal, in triplicate, with a statutory fee of \$165.00.

REAL PARTY IN INTEREST

The present application was assigned to Paratek Microwave, Inc. as indicated by an assignment from the inventors recorded on 02/28/2002 in the Assignment Records of the United States Patent and Trademark Office at Reel 012695, Frame 0431.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

Claims 1-35 stand rejected pursuant to an Office Action mailed December 13, 2003. Claims 1-35 are all presented for appeal.

STATUS OF AMENDMENTS

A Request for Continued Examination with Amendments in response to Examiner's mailed June 18, 2003 Final Action was filed on November 18, 2003. The Examiner issued another Final

action mailed December 12, 2003 in response to the RCE, which finally rejected claims 1 – 35 as amended.

SUMMARY OF INVENTION

The present invention provides a wireless communication network 46 comprising a plurality of nodes 68, 70, 72, 74, 76 each node having at least one dynamically directionally controllable communications link 78, 80, 82, 84, 86, 88, 90, 92 and a network controller 62 for dynamically changing the direction of the controllable communications links 78, 80, 82, 84, 86, 88, 90, 92 of the nodes 68, 70, 72, 74, 76 to enable transmission of signals between the nodes 68, 70, 72, 74, 76. The invention further includes a hub type wireless communication network comprising a hub node 48 having at least one dynamically directionally controllable communications link 58, 60 a plurality of remote nodes 50, 52, 54, 56 which may or may not all have dynamic directional beam control, and a network controller 62 for dynamically controlling the direction of the communications link to enable transmission of signals between the hub node 48 and the remote nodes 50, 52, 54, 56.

STATEMENT OF ISSUES

Are Claims 1 - 4, 6 - 16, 18 - 21 and 23 - 33 and 35 unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712)?

Are claims 2, 14, 19 and 26 unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712) and further in view of Briley (U.S. Patent No. 6,456,610)?

Are claims 6, 23 and 31 unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712) and further in view of Briley (U.S. Patent No. 6,456,610), and even further in view of Suzuki (Japanese Patent No. JP-03165105)?

GROUPING OF CLAIMS

Applicants request that the following groups of claims be considered:

Claims 1 - 4, 6 - 16, 18 - 21 and 23 - 33 and 35;

Claims 2, 14, 19 and 26;

Claims 6, 23 and 31.

ARGUMENT

1. Claims 1 - 4, 6 - 16, 18 - 21 and 23 - 33 and 35 were rejected as being unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712). According to M.P.E.P. §2143, to establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, there must be a reasonable expectation of success. Third, the prior art reference must teach or suggest all the claim limitations. The Examiner has not established a prima facie case of obviousness in this instance.

First, there is no suggestion or motivation in any of the cited patents to combine them as proposed by the Examiner. The Natarajan patent is directed to a satellite communication network using a plurality of satellites having at least one dynamically directionally controllable communications link with no mention of microwave communication or scanning antennas. The Chen patent is directed to a two-dimensionally scannable antenna system for transmission or receiving a microwave beam over a wide angular region, using multiple parallel plate lenses for focusing and to provide, in conjunction with a like number of phase shifters, scanning of the beam in one transverse direction. There is no mention in Chen of satellite communication. The Examiner has not cited any language in any of the Natarajan or Chen patents that they can be combined as has been proposed. The Examiner merely makes conclusory "it would be obvious to combine" statements since "Chen provides a less complex, lighter and less costly configuration of beam", without providing any support from the cited references to support such a claim. Therefore, the first criteria for a prima facie case of obviousness has not been met.

Second, a reasonable expectation of success has not been shown by the Examiner. The proposed combination of the Natarajan and Chen patents would not be capable of performing the operation required by the claimed invention. None of the cited patents discuss using a scanning antenna with dynamically controllable communications links, much less an electronic scanning antenna and a network controller for dynamically changing the direction of the controllable communications links of the nodes to enable transmission of signals between the nodes (claim 1). The Examiner, without the hindsight look through the claimed invention, has not shown that proposed combination of the Natarajan and Chen patents would have any success let alone a reasonable expectation of success. Therefore, the second criteria for a prima facie case of obviousness has not been met.

2. Claims 2, 14, 19 and 26 were alleged unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712) and further in view of Briley. Again, according to M.P.E.P. §2143, to establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, there must be a reasonable expectation of success. Third, the prior art reference must teach or suggest all the claim limitations. The Examiner has not established a prima facie case of obviousness in this instance.

First, there is no suggestion or motivation in any of the cited patents to combine them as proposed by the Examiner. The Natarajan patent is directed to a satellite communication network using a plurality of satellites having at least one dynamically directionally controllable communications link with no mention of microwave communication. The Chen patent is directed to a two-dimensionally scannable antenna system for transmission or receiving a microwave beam over

a wide angular region, using multiple parallel plate lenses for focusing and to provide, in conjunction with a like number of phase shifters, scanning of the beam in one transverse direction. The Briley patent is directed to a terrestrial wireless telecommunication system that uses an electronic scanning antenna to rotate a beam that carries communication messages between a base station and a plurality of wireless terminals. There is no mention in Chen of satellite communication and, in Briley, it specifically states that it is terrestrial, thereby teaching away from being combined with Natarajan. The Examiner has not cited any language in any of the Natarajan, Chen or Briley patents that they can be combined as has been proposed. The Examiner merely makes conclusory "it would be obvious to one of ordinary skill in the art to modify" statements without providing any support from the cited references to support such a claim; and indeed requires three references be combined in order to enable continuous scanning and including phase shifters. Therefore, the first criteria for a prima facie case of obviousness has not been met.

Second, a reasonable expectation of success has not been shown by the Examiner. The proposed combination of the Natarajan, Chen and Briley patents would not be capable of performing the operation required by the claimed invention. None of the cited patents discuss using a scanning antenna with dynamically controllable communications links much less an electronic scanning antenna and a network controller for dynamically changing the direction of the controllable communications links of the nodes to enable transmission of signals between the nodes and the use of continuous scanning and including phase shifters. The Examiner, without the hindsight look through the claimed invention (especially in light of the fact that three references have been combined), has not shown that proposed combination of the Natarajan, Chen and Briley patents would have any success let alone a reasonable expectation of success. Therefore, the second criteria for a prima facie case of obviousness has not been met.

3. Claims 6, 23 and 31 were rejected as being unpatentable under 35 U.S.C. § 103(a) as being obvious over Natarajan et al. (U.S. Patent No. 5,790,070), in view of Chen (U.S. Patent No. 4,975,712) and further in view of Briley and even further in view of Suzuki?

Again, according to M.P.E.P. §2143, to establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, there must be a reasonable expectation of success. Third, the prior art reference must teach or suggest all the claim limitations. The Examiner has not established a prima facie case of obviousness in this instance.

First, there is no suggestion or motivation in any of the cited patents to combine them as proposed by the Examiner. The Natarajan patent is directed to a satellite communication network using a plurality of satellites having at least one dynamically directionally controllable communications link with no mention of microwave communication. The Chen patent is directed to a two-dimensionally scannable antenna system for transmission or receiving a microwave beam over a wide angular region, using multiple parallel plate lenses for focusing and to provide, in conjunction with a like number of phase shifters, scanning of the beam in one transverse direction. The Briley patent is directed to a terrestrial wireless telecommunication system that uses an electronic scanning antenna to rotate a beam that carries communication messages between a base station and a plurality of wireless terminals; and the Suzuki patent is directed to scanning antennas. There is no mention in Chen of satellite communication and in Briley it specifically states that it is terrestrial, thereby teaching away from being combined with Natarajan. The Examiner has not cited any language in any of the Natarajan, Chen, Briley or Suzuki patents that they can be combined as has been proposed. The Examiner merely makes conclusory "it would be obvious to one of ordinary skill in the art to

modify" statements without providing any support from the cited references to support such a claim; and indeed requires four references be combined in order to enable continuous scanning and including phase shifters and further analog phase shifters. Therefore, the first criteria for a prima facie case of obviousness has not been met.

Second, a reasonable expectation of success has not been shown by the Examiner. The proposed combination of the Natarajan, Chen, Briley and Suzuki patents would not be capable of performing the operation required by the claimed invention. None of the cited patents discuss using a scanning antenna with dynamically controllable communications links much less an electronic scanning antenna and a network controller for dynamically changing the direction of the controllable communications links of the nodes to enable transmission of signals between the nodes and the use of continuous scanning and including analog phase shifters. The Examiner, without the hindsight look through the claimed invention (especially in light of the fact that four references have been combined), has not shown that proposed combination of the Natarajan, Chen, Briley and Suzuki patents would have any success let alone a reasonable expectation of success. Therefore, the second criteria for a prima facie case of obviousness has not been met.

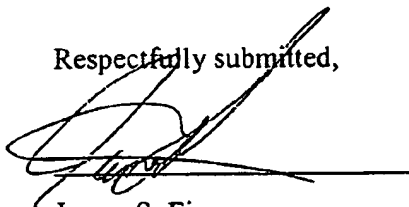
Applicants respectfully request the Examiner provide one or more combinable references that support the rejections of the claims. The Examiner has not cited any language within the various combinations of the Natarajan/Chen/Briley/Susuki patents, either alone or in combination, that would suggest the desirability of making the claimed invention or providing any motivation to do so. Subjective conclusions of obviousness are not sufficient to establish a prima facie case of obviousness without some objective reason to modify and combine the prior art references. Therefore, Applicants respectfully submit that Claims 1-35 are patentably distinct from the proposed various combinations of the Natarajan/Chen/Briley/Suzuki patents.

CONCLUSION

Applicants have clearly demonstrated that the present invention as claimed is clearly distinguishable over all the art cited of record, either alone or in combination. Therefore, Applicants respectfully request the Board of Patent Appeals and Interferences reverse the final rejection of the Examiner and instruct the Examiner to issue a notice of allowance of all Claims.

The Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 502697.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'James S. Finn', is written over a horizontal line.

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Appendix A

1. (Currently Amended) A wireless communication network comprising:
a plurality of nodes, each having at least one dynamically directionally controllable communications link, wherein each of the dynamically directionally controllable communications links comprises an electronic scanning antenna; and
a network controller for dynamically changing the direction of the controllable communications links of the nodes to enable transmission of signals between the nodes.
2. (New) The wireless communication network of claim 1, wherein said electronic scanning antenna is continuous scanning and includes phase shifters.
3. (Original) The wireless communication network of claim 1, wherein selected ones of the nodes further include an additional dynamically directionally controllable communications link.
4. (Original) The wireless communication network of claim 1, further comprising:
a low data rate signaling channel for transmitting control information from the network controller to the nodes.
5. (Original) The wireless communication network of claim 4, wherein the signaling channel includes:
a wide-angle antenna beam at each of the nodes.

6. (New) The wireless communication network of claim 2, wherein said phase shifters are analog phase shifters and the communication can be bi-directional.

7. (Original) The wireless communication network of claim 1, wherein the network controller changes the direction of the controllable communications links during a guard interval between the transmission and reception of information signals between pairs of the nodes.

8. (Original) The wireless communication network of claim 1, wherein each of the nodes includes:

an antenna producing at least one dynamically directionally controllable beam.

9. (Original) The wireless communication network of claim 8, wherein each of the dynamically directionally controllable beams is a narrow beam.

10. (Original) The wireless communication network of claim 1, further comprising:

means for connecting one of said nodes to a backbone circuit.

11. (Original) The wireless communication network of claim 1, wherein at least one of said nodes is a satellite; and at least one other of said nodes is a ground station.

12. (Currently Amended) A method for transmitting communications signals comprising the steps of:

providing a plurality of nodes for receiving communications signals, each having at least one dynamically directionally controllable communications link, wherein each of the dynamically directionally controllable communications links comprises an electronic scanning antenna; and

dynamically changing the direction of the controllable communications links of the nodes to enable transmission of the communications signals between the nodes.

13. (Original) The method of claim 12, further comprising the step of:
transmitting control information from the network controller to the nodes on a
low data rate control channel.

14. (New) The method of claim 12, wherein said electronic scanning
antenna includes phase shifters.

15. (Original) The method of claim 12, wherein the network controller
changes the direction of the controllable communications links during a guard interval between the
transmission and reception of information signals between pairs of the nodes.

16. (Original) The method of claim 12, further comprising the step of:
connecting one of said nodes to a backbone circuit.

17. (Original) The method of claim 12, further comprising the steps of:
dynamically spreading the communications signal over multiple routes among
the nodes; and
reassembling the communications signal at a predetermined node.

18. (Currently Amended) A wireless communication network comprising:
a hub node having at least one dynamically directionally controllable
communications link, wherein each of the dynamically directionally controllable communications
links comprises an electronic scanning antenna;
a plurality of remote nodes; and
a network controller for dynamically controlling the direction of the
communications link to enable transmission of signals between the hub node and the remote nodes

19. (New) The wireless communication network of claim 18, wherein said
electronic scanning antenna includes phase shifters.

20. (Original) The wireless communication network of claim 18, wherein the hub node further includes an additional dynamically directionally controllable communications link.

21. (Original) The wireless communication network of claim 18, further comprising:

a low data rate signaling channel for transmitting control information from the network controller to the hub node.

22. (Original) The wireless communication network of claim 21, wherein the signaling channel includes:

a wide-angle antenna beam at the hub node.

23. (New) The wireless communication network of claim 18, wherein said phase shifters are analog phase shifters.

24. (Original) The wireless communication network of claim 18, wherein the network controller changes the direction of the controllable communications links during a guard interval between the transmission and reception of information signals between pairs of the nodes.

25. (Original) The wireless communication network of claim 18, wherein the hub node includes:

an antenna producing at least one dynamically directionally controllable beam.

26. (New) The wireless communication network of claim 18, wherein said electronic scanning antenna is a continuous electronic scanning antenna.

27. (Original) The wireless communication network of claim 18, further comprising:

means for connecting one of said hub nodes and said remote nodes to a backbone circuit.

28. (Original) The wireless communication network of claim 18, wherein at least one of said remote nodes is a satellite; and the hub node is a ground station.

29. (Currently Amended) A method for transmitting communications signals comprising the steps of:

providing a hub node for receiving communications signals, the hub node having at least one dynamically directionally controllable communications link, said communications link including at least one continuous electronic scanning antenna;

providing a plurality of remote nodes for exchanging the communications signals with the hub node; and

dynamically changing the direction of the controllable communications links of the hub node to enable transmission of the communications signals between the hub node and the remote nodes.

30. (Original) The method of claim 29, further comprising the step of:

transmitting control information from the network controller to the hub node on a low data rate control channel.

31. (New) The method of claim 29, wherein said continuous electronic scanning antenna includes at least one analog phase shifter.

32. (Original) The method of claim 29, wherein the network controller changes the direction of the controllable communications link during a guard interval between the transmission and reception of information signals between the hub node and one of the remote nodes.

33. (Original) The method of claim 29, further comprising the step of:

connecting one of the hub node and the remote nodes to a backbone circuit.

34. (Original) The method of claim 12, further comprising the steps of:
separating a message transmitted by the communications signals into
segments; and
distributing the segments to different ones of the nodes; and
reconstructing the message at a destination node.
35. (New) A wireless communication network comprising:
a plurality of nodes, each of said plurality of nodes having at least one
electronic scanning antenna; and
a network controller for dynamically changing the direction of the controllable
communications links of the nodes to enable transmission of signals between the nodes.